June 13, 2022

U.S. Department of Transportation
Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Avenue, SE.
Washington, DC 20590

Re: Vistra Corp. Petition for Exemption From Certain Provisions of the Federal Aviation Regulations Pursuant to 49 U.S.C. § 44807, and 14 C.F.R. Part 11

To Whom It May Concern:

Pursuant to the FAA Reauthorization Act of 2018, 49 U.S.C. § 44807 and 14 C.F.R. Part 11, Vistra Corp (Vistra) respectfully submits this Petition for Exemption from the Federal Aviation Regulations (FARs) identified below to expedite its inspection of critical infrastructure using the Percepto Sparrow 2.4 small unmanned aircraft (sUA).

Vistra seeks an exemption from the following provisions of 14 C.F.R. Part 107 to enable sUAS inspections of Vistra's Brightside solar farm:

- 14 C.F.R. § 107.15: Condition for safe operation
- 14 C.F.R. § 107.49: Preflight familiarization, inspection, and actions for aircraft operation

The proposed operations would be conducted beyond visual line of sight (BVLOS) of a remote pilot in command (RPIC) that is not co-located onsite with the sUA.[1] The RPIC will use the Percepto Cloud Management System (CMS) to command avoidance maneuvers. An onsite Visual Observer (VO) who is in communication with the offsite RPIC will be used to observe the airspace and provide information to the RPIC necessary for the RPIC to deconflict with any intruding aircraft within a 2 SM radius of the sUA. Vistra will use a remote camera system to perform the visual inspections of the sUA and area of operation required by §§ 107.15 and 107.49. Prior to launch, several automated health and safety pre-flight checks are conducted, ranging from checking the health of the battery, gimbal, and secondary communication channel to an assessment of local weather.

The relief sought in this Petition for Exemption is similar to the relief granted by the FAA to American Robotics in Exemption No. 18693 (Docket No. FAA-2019-0075) and BNSF Railway in Exemption No. 18823 (Docket No. FAA-2020-0620), both of which involved exemptions from §§ 107.15 and 107.49. In the exemptions issued to American Robotics and BNSF Railway, the FAA determined that automated preflight checks and the use of a camera system would allow an offsite RPIC to conduct the pre-flight checks, inspections and assessments required by §§ 107.15 and 107.49. As discussed below and in the accompanying operating documents, Vistra's proposed operations also allow for an offsite RPIC to perform the functions required by §§ 107.15 and 107.49 and will therefore ensure that the proposed operations do not adversely affect safety.

[1] In conjunction with this exemption request, Vistra is submitting a separate request for a waiver from 14 C.F.R. §§ 107.31 and 107.33, reference number 107W-2022-00822.

Benefits to Vistra Corp and the Public

The annual cost of security has continued to increase significantly since terrorist attacks against the United States on September 11, 2001 – including for critical infrastructure facilities. Continued changes to meet security demands and evolving regulations have impacted cost through increased personnel, equipment, delay barriers and strategy. These changes have been necessary to deter, detect, interdict, or neutralize threats. Security is seeking cost-effective methods for maintaining and hardening the security infrastructure from potential threats. The use of sUA has the potential for transforming and enhancing the monitoring capabilities of security to include detection, assessment, and real-time response to anomalous events. Improved sUA inspections, monitoring, and security of critical assets and facilities are more cost-effective methods for maintaining and hardening the security infrastructure from threats. Additionally, the safety and welfare of the security workforce will be markedly and positively improved when a sUA is employed to help harden infrastructure security through remotely controlled, cost saving, precise, standardized, high-quality and on-demand inspections.

The sUA is able to collect more precise and accurate data, which is then analyzed, providing a better understanding of changes to infrastructure and assets, saving time and allowing for a quicker response.

In order for Vistra to scale the planned multiple daily inspection operations across its solar farm, Vistra requires the ability to conduct operations using an RPIC who is not physically co-located on-site with the sUA. Given that the FAA has communicated that compliance with the preflight inspection and familiarization requirements in §§ 107.15 and 107.49 requires an on-site RPIC co-located with the sUA, the proposed operations necessitate relief from §§ 107.15 and 107.49. An exemption from these requirements is necessary because §§ 107.15 and 107.49 are not subject to waiver under Part 107.

In lieu of a visual inspection conducted by an RPIC who is co-located with the sUA, the off-site RPIC will use a remote camera system to perform the visual inspections required by §§ 107.15 and 107.49. Additionally, to ensure functionality and security, the remote visual inspections will be augmented by automated checks of the system as well as by a VO co-located with the sUA on-site. The visual inspection and the automated checks of the system will ensure an equivalent level of safety to that of an on-site RPIC performing the requirements of §§ 107.15 and 107.49.

In support of its safety case, Vistra is also submitting the following documents:

- Sparrow 2.4 UAS Flight Manual
- Percepto UA Maintenance Manual
- Remote Preflight Checks and Daily Inspection Procedure
- CMS Operator Manual 2.4 LTE SCC
- Comparison of Percepto System 2.4 and TC System 2.4

These documents are being submitted under separate cover as confidential documents. Vistra requests that they be withheld from public disclosure pursuant to 14 C.F.R. § 11.35(b). These documents contain confidential, commercial, and proprietary information of Percepto Robotics, Ltd. and Vistra that is not generally available to the public and is protected from release under the Freedom of Information Act, 5 U.S.C. § 552 *et seq*.

Background of Petitioner

Vistra is a Fortune 275 integrated retail electricity and power generation company based in Irving, Texas. The company is the largest competitive power generator in the U.S. with a capacity of approximately 39GW powered by a diverse portfolio, including natural gas, nuclear, solar, and battery energy storage facilities. In the 2020 Forbes Global 2000, Vistra Energy was ranked as the 756th-largest public company in the world. The firm employs 5,365 people in the United States.

Percepto System 2.4 Description

The Percepto System 2.4 "drone in a box" sUAS utilizes a 22-pound Sparrow 2.4 sUA equipped with cameras and a parachute, which is housed in an onsite "Base." The Base includes an HVAC unit, which controls the temperature inside the Base, and a Weather Station. The Base protects the sUA from the environment, provides a takeoff and landing pad, charges the sUA and downloads information to the Percepto's CMS software. The system is also equipped with a secondary communication channel provided for emergency situations. These system features make it possible to safely conduct operations using an RPIC who is not physically located onsite with the sUA.

A similar Percepto system[2] is currently going through the FAA Durability and Reliability (D&R) Type Certification process. That system has proven its reliability by successfully completing D&R testing, Likely Failure and Specific Demonstration testing with the LAACO, as well as Operational Suitability Demonstrations with AED.

The Percepto system is designed such that any failure of the system's automated preflight checks will cause the mission to be aborted. As part of the preflight check, the VO, who is in communication with the off-site RPIC, will inspect the sUA for damaged components and the surrounding area for obstructions or people. Additional weather and airspace checks will be performed by the RPIC before each flight.

In addition to the preflight checks, the RPIC will perform a detailed daily remote inspection of the sUA. The daily remote inspection will only take place during daylight hours and is valid for 24 hours from the time of the inspection. The daily remote inspection also includes a preflight check. The camera system used to perform this visual inspection completes a full cycle of over 35 pre-defined viewpoints of the sUA, Base Station and surrounding operating environment and can be manipulated by the RPIC. For additional details regarding the remote inspection and procedure, refer to the document, Remote Preflight Check and Daily Inspection Procedure, document reference: PRCPTO-OP-31-P-2073 submitted under separate cover.

[2] The two main differences between the TC model and the model that Vistra proposes to use in these operations are that the Vistra model (1) is capable of continuous upgrades to the software and (2) is equipped with upgraded Secondary Communication Channel from a radio frequency to LTE communication. Software versions are constantly being updated with bug fixes and enhanced capabilities. The main hardware change involves replacing the Crossfire RF module with a Sierra LTE module and upgrading the PerceptoCore to accommodate the new secondary communication channel. The benefits of using the LTE channel include: increased range and availability, no requirement for additional installation, and enabling logging of information.

14 CFR § 11.81(a): Contact Information

In accordance with 14 C.F.R. § 11.81(a), the contact information for the Petitioner is as follows:

Petitioner Name: Vistra Corp
Address: 6555 Sierra Dr, Power Optimization Center, Irving TX, 75039
Contact Person: William Mallory
Title: Operations Manager
Email: William.Mallory@luminant.com
Tel: 214-875-9367

Regulations From Which Exemption is Sought

Vistra Corp is requesting exemption from §§ 107.15 and 107.49, which state:

> **§ 107.15 Condition for safe operation.**
> (a) No person may operate a civil small unmanned aircraft system unless it is in a condition for safe operation. Prior to each flight, the remote pilot in command must check the small unmanned aircraft system to determine whether it is in a condition for safe operation.
> (b) No person may continue flight of the small unmanned aircraft when he or she knows or has reason to know that the small unmanned aircraft system is no longer in a condition for safe operation.
>
> **§ 107.49 Preflight familiarization, inspection, and actions for aircraft operation.**
> Prior to flight, the remote pilot in command must:
> (a) Assess the operating environment, considering risks to persons and property in the immediate vicinity both on the surface and in the air. This assessment must include:
> (1) Local weather conditions;
> (2) Local airspace and any flight restrictions;
> (3) The location of persons and property on the surface; and
> (4) Other ground hazards.
> (b) Ensure that all persons directly participating in the small unmanned aircraft operation are informed about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards;
> (c) Ensure that all control links between ground control station and the small unmanned aircraft are working properly;
> (d) If the small unmanned aircraft is powered, ensure that there is enough available power for the small unmanned aircraft system to operate for the intended operational time;
> (e) Ensure that any object attached or carried by the small unmanned aircraft is secure and does not adversely affect the flight characteristics or controllability of the aircraft; and
> (f) If the operation will be conducted over human beings under subpart D of this part, ensure that the aircraft meets the requirements of § 107.110, § 107.120(a), § 107.130(a), or § 107.140, as applicable.

Relief from these FARs is necessary because the FAA has previously determined that the requirements of §§ 107.15 and 107.49 cannot be complied with using an RPIC who is not co-located with the sUA. As discussed below, the Percepto system includes design features that enable a remotely located RPIC to perform the necessary preflight inspections. These features, along with the operational mitigations adopted by Vistra, will ensure an equivalent level of safety to an operation that complies with §§ 107.15 and 107.49.

Equivalent Level of Safety

Granting the relief requested in this Petition for Exemption will provide at least an equivalent level of safety for the following reasons:

The preflight checks will be accomplished using automated system checks and remote cameras that allow the RPIC to visually inspect the sUA and assess the operating environment from a remote location.

The remote camera system allows the RPIC to manipulate and maneuver the cameras to adjust his or her view. These cameras will allow the RPIC to see all sides of the sUA, the Base, and the surrounding area. The camera system also features zoom capabilities that allow the RPIC to obtain closer views of the sUA and the surrounding area, if necessary, during the preflight check. The camera's ability to record video and take photos enables comparison data from day to day. This feature enhances the level of safety as operations can now include a database of images or video which can be reviewed if the need arises.

Additionally, the operating procedures developed and used to perform the remote preflight check cover all of the items that would be checked by an on-site RPIC performing preflight checks and inspections in accordance with §§ 107.15 and 107.49. The RPIC will remain solely responsible for determining that the sUA is in a safe condition for flight and confirming the planned flight operations are within the operating limitations of the sUAS. The RPIC will abort the mission if any of the checks fails. This highly efficient technology ensures safety and enhances operational efficiencies.

Automated preflight health checks continue to occur throughout the entirety of the flight operation. The result of a failed automated preflight check is aborting the mission. For details on other automated health checks of the Percepto System that occur throughout all phases of the operation, see the Remote Preflight Checks and Daily Inspection Procedure.

Assessment of local weather conditions will be accomplished through a combination of tools and resources. The Percepto System has an integrated weather station that sends basic weather information to the CMS. The CMS also captures local weather conditions via online weather reporting sources. Finally, the external preflight inspection cameras can be used to visually assess local weather conditions in conjunction with an on-site VO to aid in assessment of local weather.

The manner in which the requirements of §§ 107.15 and 107.49 are performed are shown in the tables on the following pages.

§ 107.15 Requirements	Description	Frequency
(a) No person may operate a civil small unmanned aircraft system unless it is in a condition for safe operation. Prior to each flight, the remote pilot in command must check the small unmanned aircraft system to determine whether it is in a condition for safe operation.	The RPIC performs a daily remote inspection in accordance with Vistra's Operating Procedures.	Daily
	The RPIC performs a visual inspection of base, surroundings, and weather conditions using camera system.	Before every flight
	Automated flight checks	Before and during every flight
(b) No person may continue flight of the small unmanned aircraft when he or she knows or has reason to know that the small	Automated flight checks	Before and during every flight

§ 107.15 Requirements	Description	Frequency
unmanned aircraft system is no longer in a condition for safe operation.		

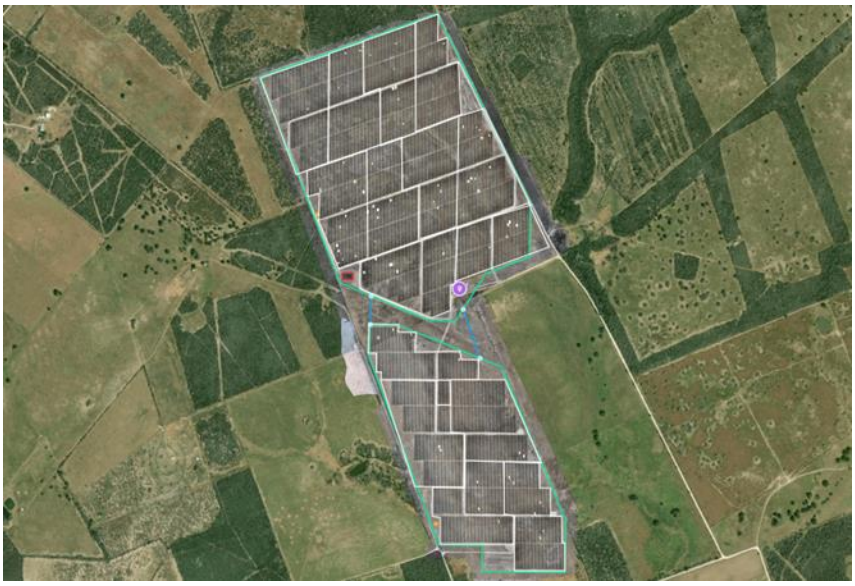
§ 107.49 Requirement	Description	Frequency
(a) Assess the operating environment, considering risks to persons and property in the immediate vicinity both on the surface and in the air. This assessment must include:	See (1)-(4) below	
(1) Local weather conditions	Automated checks sent to the CMS from the onsite weather station.	Before and during every flight
	The RPIC checks local weather conditions online and airport AWOS-III reporting from airports in general vicinity via phone.	Before every flight
	The RPIC uses exterior cameras to assess low level cloud coverage and visibility.	Before every flight
(2) Local airspace and any flight restrictions	The RPIC checks local airspace and any flight restrictions (NOTAMs, TFRs, etc.).	Before every flight
	Automated preflight checks use ADS-B-in and radar to verify there are no other aircrafts in the area.	Before and during every flight
(3) The location of persons and property on the surface	The RPIC uses exterior cameras to ensure the area around the base is secure for takeoff and landing.	Before every flight
	UA operations will be conducted within the footprint of a restricted access site.	N/A
	Operations over people waiver is being requested	N/A
(4) Other ground hazards	Ground hazards are identified in the site setup as no-fly zones.	N/A
	The site setup is reviewed on a regular basis and any new hazard is incorporated.	N/A
	The site is a restricted access facility with all personnel badged and unbadged individuals under escort.	N/A
(b) Ensure that all persons directly participating in the small unmanned aircraft operation are informed	The RPIC briefs all persons directly participating in the sUAS operation.	Before every flight

§ 107.49 Requirement	Description	Frequency
about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards		
(c) Ensure that all control links between ground control station and the small unmanned aircraft are working properly	All control links are checked automatically before and during flight. If any of the preflight checks fail, the mission is automatically aborted.	Before and during every flight
(d) If the small unmanned aircraft is powered, ensure that there is enough available power for the small unmanned aircraft system to operate for the intended operational time	The condition of the battery is checked automatically preflight. In addition, the battery is continuously monitored during the operation and the sUA is automatically returned to the base in the case of low battery.	Before and during every flight
(e) Ensure that any object attached or carried by the small unmanned aircraft is secure and does not adversely affect the flight characteristics or controllability of the aircraft	Automated checks verify proper operation of gimbal and payload.	Before and during every flight
	The RPIC uses camera system to verify all components of the sUA are secure	Daily
(f) If the operation will be conducted over human beings under subpart D of this part, ensure that the aircraft meets the requirements of § 107.140.	OOP is being requested as a waiver because airworthiness certificates are not yet being issued for sUA and standard remote identification has not yet been implemented.	N/A

National Environmental Policy Act Compliance

1. **What is the location of the operation (provide a map printout or coordinates for the boundaries)?**

NW	28.45990, -97.99045
NE	28.46219, -97.98311
SE	28.44051, -97.97630
SW	28.43874, -97.98131



2. **Approximately how many operations per day/year are expected to flown? Is each operation a round trip or a one-way flight per day?**

   Approximately 2 flights daily or 730 flights per year.

3. **What are the operating hours in a typical day at the location?**

   Operations are typically conducted onsite between 0800 and 1700 local time daily.

4. **What altitudes will the aircraft be operating at for cruise and delivery?**

   The sUA will not operate above 400ft AGL during any portion of the flight. The proposed operations do not involve package delivery.

5. **Are there any historic/tribal properties, neighborhoods, schools, parks, wildlife or protected natural areas below or adjacent to the area of operations?**

   No, the site is privately owned, fenced, gated, and access-controlled. There are no historic/tribal properties, neighborhoods, schools, parks, wildlife or protected natural areas within the vicinity of the operational site.

6. **Is there a possibility that the operations could cause significant public controversy in the area?**

   No, the operations will take place at the Vistra Brightside solar facility in Beeville, TX. The site is privately owned, fenced, gated and access is restricted to prevent entry by uninvolved bystanders. There are security gates and cameras to prevent access by nonparticipants. In addition to the site fence, operations will be contained within the operational boundaries using geo-fencing

protocols. These mitigations limit access from the general public and mitigate any potential controversy. As previously noted, there are no neighborhoods, schools, parks or other sensitive areas near the operating site.

7. **Is this a type of operation that would typically be conducted by a larger manned aircraft or ground vehicle?**

   Yes, all operations replace or supplement missions that were previously conducted by ground vehicles and/or human inspectors on a daily basis. The proposed aerial inspections of critical infrastructure at this site eliminate the need for ground vehicles to navigate to each location.

8. **Has any public outreach been accomplished already (describe)?**

   No, given the site is private and access-restricted, no public outreach has been conducted at this time. However, Vistra and Percepto may conduct community outreach in the future should the community have questions about the systems.

Public Interest

Granting the relief requested in this Petition for Exemption is in the public interest for the following reasons:

- The proposed operations will increase worker safety. Whether it is reduced accidents on the road for the driving patrols or safety issues relating to employees doing inspections on the ground using equipment, the proposed operations will significantly improve the safety of Vistra personnel by reducing the likelihood of work-related accidents associated with traditional means of conducting the infrastructure inspections that the sUA will be tasked with.
- On an environmental level, the proposed operations will reduce Vistra's environmental carbon footprint by decreasing the need for driving patrols. There would be fewer greenhouse gas emissions and less noise and impact on the public. The use of sUAS provides a less intrusive method of community engagement which serves the public interest.
- The proposed operations are in the public's economic interest because they support Vistra's ability to seamlessly provide the public with critical natural gas, nuclear, solar, and battery energy storage. With annual revenues of $11.4 billion, Vistra is the756th-largest public company in the world and a Fortune 275 company. The proposed operations will help maintain critical infrastructure across the U.S. that is essential to the safety, efficiency, and well-being of more than millions of customers. The operational efficiencies gained by using sUA for the proposed operations reduce Vistra's costs of operation and these savings are passed on to the consumer.
- The proposed operations will also increase safety to the public. The operations will allow for more efficient and more frequent inspection of critical infrastructure and solar facilities to detect maintenance issues and potential hazards – enhancing the safety of the public.
- Inspections, monitoring, and security of critical assets and facilities with sUA is a more cost-effective method for maintaining and hardening the security infrastructure from threats. Additionally, sUA significantly improve the safety and welfare of the security workforce as UAS

enhance infrastructure security through remotely controlled, cost saving, precise, standardized, high-quality and on-demand inspections.

- UAS are able to collect more precise and accurate data, which is then analyzed, providing a better understanding of changes to infrastructure and assets, saving time and allowing for a quicker response.

Federal Registry Summary

If publication to the FEDERAL REGISTER is deemed necessary, Vistra proposes the following summary for publication:

Docket No.: FAA-2022-_____

Petitioner: Vistra Corp.

Section(s) of 14 CFR Affected: §§ 107.15 and 107.49

Description of Relief Sought: Vistra seeks relief from 14 CFR §§ 107.15 and 107.49 to allow Vistra to utilize a remote camera system and automated system checks to perform preflight inspections of a small uncrewed aircraft (sUA) and access the operating environment around the sUA. The remote camera inspection and automated system checks would enable a remote pilot in command that is not co-located onsite with the sUA to determine whether the sUA is in a condition for safe operation as required by the regulations from which relief is sought. The requested relief, in conjunction with a separate request for a waiver from 14 C.F.R. §§ 107.31 and 107.33, will allow Vistra to conduct beyond visual line of sight sUA inspections of Vistra owned and/or serviced critical infrastructure facilities.

Operations Outside the U.S.

Vistra is not requesting to exercise the privileges of this exemption outside the United States.

Conclusion

For the foregoing reasons, Vistra respectfully requests that the FAA grant this Petition for Exemption.

Should you have any questions, or if you need additional information to support Vistra's Petition for Exemption, please do not hesitate to contact the undersigned.

Sincerely,

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